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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/525,671 | 09/12/2005 | Jae Min Oh | 50098/011001 | 9560 |
| 21559 | 7590 | 01/30/2007 | | |
| CLARK & ELBING LLP 101 FEDERAL STREET BOSTON, MA 02110 | | | EXAMINER LISTVOYB, GREGORY | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1711 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 01/30/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/525,671

Applicant(s)

OH ET AL.

Examiner

Gregory Listvoyb

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

Claims 1 and 2 rejected under 35 U.S.C. 102(b) as being anticipated by Butuc et al (Journal of Pol. Sci, vol 22 503-507(1984)), herein Butuc.

Butuc discloses a diamine structure, identical to one, recited in Claims 1 and 2 (Page 503).

Claims 1 and 2 rejected under 35 U.S.C. 102(b) as being anticipated by Model et al (US patent 3944547) herein Model.

Model discloses a diamine structure, identical to one, recited in Claims 1 and 2 (Column 3, line 15).

Claims 1 and 2 rejected under 35 U.S.C. 102(b) as being anticipated by Seltzer et al (US patent 3700665) herein Seltzer.

Seltzer discloses a diamine structure, identical to one, recited in Claims 1 and 2 (Column 1, line 25).

Claims 1-3, 6 and 8 rejected under 35 U.S.C. 102(b) as being anticipated by Seltzer et al (US patent 3729448) herein Seltzer 2.

Seltzer 2 teaches a diamines, identical to one in the application, a polyamic acid with inherent viscosity within the range 0.1-5 (Column 1, line 50, Column 6, line 15 and Column 6, line 60). In examiner's opinion, the above range of intrinsic viscosity meets the limitations of Claim 8 (Mw range 10K-500K).

Claim Rejections - 35 USC § 103

Claim 1-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamonzon et al (US patent 6316170), herein Kawamonzon in combination with Seltzer (US patent 3700665).

Kawamonzon discloses a polyamic solution and a liquid crystal optical element member (Column 1, line 15) based on heterocyclic cycle (triazine) containing polyimide (Column 9, line 50).

Regarding Claims 3 -5, Kawamonzon discloses a polyamic acid, comprising a tetravalent aromatic or alicyclic group (column 13, line 45) and aromatic diamines compound (Column 14, line 35, column 16, line 50) and siloxane –based diamines (Column 18, line 35), which is present in the amount of 0.02-0.2 molar equivalent of all the diamines compounds (column 19, line 5).

Art Unit: 1711

Regarding claim 6-7, a dianhydride comprising an aromatic or alicyclic group or their mixture (Column 14, lines 25 and 50).

Kawamonzen discloses that inherent viscosity of the above polyamic acid is between 0.3 dl/g and 1.5 dl/g, meeting the limitations of Claim 8 regarding MW between 10 K and 500K.

Kawamonzen does not teach bis-phenyl substituted triazine cycle of Claim 1 and a polyamic acid based on the above diamine. Seltzer teaches diamines and polyimides based on bis-phenyl substituted triazine cycle. Triazine substitutes significantly change light adsorption pattern of the material, which can be useful for liquid crystal alignment device. Therefore, it would be obvious to a person with ordinary skills in the art to use Seltzer's diamines in Kawamonzen's composition used for liquid crystal optical device.

Claim 1-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Machido et al (US patent 6159654), herein Machido in combination with Seltzer (US patent 3700665).

Machido discloses a polyamic solution and a liquid crystal aligning agent (Column 1, line 15) based on heterocyclic cycle (triazine) containing polyimide (Column 3, line 55).

Art Unit: 1711

Regarding Claims 3 -5, Machido discloses a polyamic acid , comprising a tetravalent aromatic or alicyclic group (column 5, line 20) and aromatic diamines compound (Column 5, line 20) and siloxane –based diamines (Column 9, line 10).

Regarding claims 6-11, Machido discloses a method of forming liquid crystal element layer by coating polyamic acid onto substrate and entirely or partly imidizing the coating (Column 3, line 45).

Machido does not teach bis-phenyl substituted triazine cycle. Seltzer teaches diamines and polyimides based on bis-phenyl substituted triazine cycle. Triazine substitutes significantly change light adsorbtion pattern of the material, which can be useful for liquid crystal alignment device. Therefore, it would be obvious to a person with ordinary skills in the art to use Seltzer's diamines in Machido's composition used for liquid crystal alignment film.

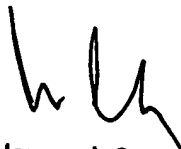
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb
Examiner
Art Unit 1711



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700

Application/Control Number: 10/525,671
Art Unit: 1711

Page 7